GENERAL NOTES.

Reinforced Concrete and Steel Dome Struck by Lightning.—To astronomers especially and to all those interested in reinforced concrete construction, where lightning is prevalent, its effect on such structures is of interest.

On the afternoon of January 2d the just-completed (but unpainted) dome for the astrographic telescope was struck by lightning during a very heavy thunder-storm. A workman in the yard of the Oficina Meteorológica, about 100 meters distant, was facing the dome and saw the bolt strike. He described it as "descending to the lightning-rod in a single ray, but immediately after the entire dome was covered with sparks."

One of our workmen was in the dome at the time cleaning the running gear, but felt nothing. Nor can any signs of sparks or damage be found.

The fuses on the power circuit, which passes close to the dome, were blown by this flash. The light circuit was cut several times during the heaviest of the storm, all probably by induced currents.

The walls of the dome are strongly reinforced with I-beams and twisted iron rods. The grounding of the lightning-rod is effected by a short length of three-eighth copper cable, which connects the rail on which the dome rotates to one of the vertical three-inch I-beams in the corners of the walls. The dome is covered with heavy galvanized iron riveted directly to the frame.

The derrick used in construction, the top of which was about two feet higher than the top of the lightning-rod, was still standing. What part it played in carrying the discharge is uncertain. The grounding of the wire guys was not good, however.

The top of the dome is about forty-two feet above the surface of the ground and of the lightning-rod forty-five feet.

C. D. PERRINE.

OBSERVATORIO NACIONAL ARGENTINO,
CÓRDOBA, February 8, 1914.

The Retirement of Professor S. W. BURNHAM.—It is stated in *Science* that Professor S. W. BURNHAM, of the staff of the Yerkes Observatory, will retire on July 1, 1914. This will close the active work of one of the most remarkable astronomical observers of modern times.

It was in 1861 that BURNHAM purchased his first astronomical telescope, and, in a sense, it may be said that his observational work began at that time. But the six-inch Clark refractor which he made famous was not ordered until 1869, and the first new double star discovered that is retained in his catalogs (B 40) was found with this telescope on the night of April 27, 1870.

The work BURNHAM accomplished with this telescope marked a new epoch in the history of double-star astronomy, and put him in the front rank of observers. No less than 451 new double stars, many of them more difficult than any previously found, were discovered with it. His later work with other and larger telescopes was equally successful, and he well deserves the tribute CAMPBELL[1] has paid him in saying: "It was he who first developed the full power of modern telescopes in double-star discovery and measurement." BURNHAM'S work, however, has not been confined entirely to observations of double-stars. He has published numerous papers giving the results of his studies of individual stars and two great general catalogs, one of his own discoveries and one containing a concise but complete history of every double star within 121° of the north pole which had been discovered prior to 1906.

CAMPBELL concludes the sentence quoted above by saying, "and his fruitful researches still continue." It is the earnest hope of every one interested in double-star astronomy that, notwithstanding BURNHAM'S retirement from active observing, we may long be able to say this of him. R. G. A.

Miss ANNIE J. CANNON of the Harvard College Observatory has been elected an honorary member of the Royal Astronomical Society of London. Miss CANNON is in charge of the great library of astronomical photographs which the observa-

[1] "Stellar Motions," p. 236.

tory possesses and is at present engaged in making a comprehensive catalog of stellar spectra. With reference to this, Professor E. C. PICKERING make the following statement in his address as President of the American Association for the Advancement of Science, at Atlanta, December 29, 1913: "During the last two or three years a great demand has arisen for the class of spectrum of large numbers of stars. The Harvard photographs show the class of spectrum of nearly two hundred thousand stars. Miss CANNON has, accordingly, undertaken to prepare a catalog of these objects, with the result that she has already classified about one hundred and fifteen thousand spectra, covering more than one half of the sky. The work is progressing at the rate of five thousand stars monthly, and the results will fill seven of the large quarto *Annals* of the Harvard Observatory. The organization of this work has required the most careful application of the principles of scientific management."

The William Ellery Hale Lectures of the National Academy of Sciences were inaugurated by Sir ERNEST RUTHERFORD, of the University of Manchester, England, who spoke in the auditorium of the National Museum, Washington, D. C., on April 21 and April 23, 1914, on the general subject of the "Constitution of Matter and the Evolution of the Elements."

It is the design of these lectures, which were founded in memory of the late WILLIAM ELLERY HALE of Chicago, "to give a clear and comprehensive outline of the broad features of inorganic and organic evolution in the light of modern research."

"The second course in the Evolution Series will be given at the next autumn meeting of the Academy by Dr. WILLIAM WALLACE CAMPBELL, Director of the Lick Observatory, Mount Hamilton, California. Provided with his raw material, as it were, by Sir ERNEST RUTHERFORD, Dr. CAMPBELL will sketch the various types of bodies which make up the universe, describe their connection in systems, and explain the principal theories of stellar evolution. His object will be to show how stars and stellar systems are gradually evolved from an earlier state and to afford a view of the Earth in its first phases of development. In this way the intimate relationship of the Earth with the Moon and the other bodies of the solar system will be made apparent, as well as the

continuity of the process which connects the present with the remote past. Dr. CAMPBELL will introduce some of the results of his extensive researches with the powerful instruments of the Lick Observatory and will employ a large collection of astronomical photographs for purposes of illustration.

"A distinguished European geologist will be invited to give the third course of lectures at the annual meeting of the Academy in 1915. Taking the Earth from the hands of the astronomer, he will show how its surface features have been altered in the process of time. Later lectures, preserving the continuity of the series, will then enter the field of organic evolution and illustrate the bearing of recent investigations in paleontology, zoology and botany on the evolution of plant and animal life. The evolution of man will form the subject of a subsequent course, and the series will close with an account of the rise of the earlier civilizations, coming into touch with the modern times in the life of the Nile Valley."

Professor FREDERICK SLOCUM has been elected professor of astronomy at Wesleyan University, Middletown, Conn. He will also be the director of the new observatory there that is to be built during the coming year. According to a note in *Popular Astronomy,* this observatory is to be erected from a bequest of $60,000 by JOSEPH VAN VLECK, and is to be a memorial to his brother, Professor J. M. VAN VLECK, who was at the head of the astronomical department at Wesleyan for many years.

Dr. EDWARD A. FATH has resigned his position as professor of astronomy at Beloit College to accept the presidency of Redfield College, South Dakota. His successor at Beloit will be Dr. E. S. HAYNES, who at present holds the Martin Kellogg Fellowship in the Lick Observatory. Dr. HAYNES will enter upon his new duties at the beginning of the autumn semester of this year.

"Professor A. S. EDDINGTON has been elected director of the Cambridge Observatory in succession to the late Sir ROBERT BALL. Readers who are unfamiliar with Cambridge are likely to find the recent reorganization of the astronomical work there somewhat confusing. The university now possesses two observatories, which, however, stand in the same grounds. The one devoted mainly to astronomy of position is called simply 'the observatory,' and it is to this that the above appoint-

ment relates. The other is the solar physics observatory, which includes also the astrophysical work; this is under the direction of the professor of astrophysics, Professor H. F. NEWALL."—*The Observatory.*

Attention was called in an earlier number of these *Publications* to the "Monthly Report on *Mars*." which is being published by Professor W. H. PICKERING in *Popular Astronomy*. The fifth report appears in the May number of that periodical and contains a very interesting discussion of the double canals of *Mars*.

Mr. STORRS B. BARRETT has been elected assistant professor at the Yerkes Observatory, and Mr. OLIVER J. LEE instructor in astronomy at the University of Chicago. — *Popular Astronomy.*

Professor S. A. MITCHELL, director of the Lander McCormick Observatory of the University of Virginia, has been appointed Ernest Kempton Adams Research Fellow of Columbia University for 1914-1915.

The Bradley Prize.—It is announced that the money subscribed in connection with the jubilee celebration of Dr. ARTHUR AUWERS has been handed over to the Berlin Academy of Science for the foundation of a Bradley Prize. The prize is to be awarded for the first time in 1918 and at intervals of five years thereafter.

Announcement is made in *Science*, of the death of Dr. GEORGE WILLIAM HILL, the great mathematical astronomer, to whom the Society awarded the Bruce Medal in 1909.